

a processing unit coupled to receive rotational wheel speed signals from said rotational wheel speed sensor;

wherein said processing unit determines characteristics of a shock absorber by analyzing said rotational wheel speed signals of said antilock brake system rotational wheel speed sensor.

Please enter new Claims 30-32 as follows:

30. (new) A method for detecting shock absorber damage, comprising:

detecting wheel speed signals of an antilock braking system rotational wheel speed sensor; and

determining an auto density spectrum based on said wheel speed signals;

comparing values of said auto density spectrum within a reference frequency range wherein said values are substantially independent of effectiveness of shock absorber performance, with values of said auto density spectrum within an analysis frequency range, wherein said values depend on effectiveness of shock absorber performance; and

detecting shock absorber damage, based on results of said comparing.

31. (new) The method according to Claim 30, wherein said auto density spectrum comprises one of rotational wheel speed change Δn of a vehicle wheel rim, and a radius change Δr of a vehicle tire.

32. (new) The method according to Claim 30, wherein said comparing comprises computing a quotient of said auto power density spectra within said analysis and reference frequency ranges.

(Applicant's Remarks are set forth hereinbelow, starting on the following page.)